Gateway To Technology Middle School Course Descriptions

PLTW's middle school program, **Gateway To Technology (GTT)**, is an activities-oriented program designed to challenge and engage the natural curiosity and imagination of middle school students. Taught in conjunction with a rigorous academic curriculum, the program is divided into six independent, nine-week units:

- **Design and Modeling**
  - This unit uses solid modeling software (a sophisticated mathematical technique for representing solid objects) as part of the design process. Utilizing this design approach, students understand how design influences their lives. Students also learn sketching techniques and use descriptive geometry as a component of design, measurement and computer modeling. Students brainstorm, research, develop ideas, create models, test and evaluate design ideas and communicate solutions.
- **Automation and Robotics**
  - Students trace the history, development, and influence of automation and robotics. They learn about mechanical systems, energy transfer, machine automation and computer control systems. Students acquire knowledge and skills in problem solving, teamwork collaboration and innovation.
- **Energy and the Environment**
  - Students investigate the importance of energy in our lives and the impact energy use has on the environment. They design and model alternative energy sources and participate in an energy expo to demonstrate energy concepts and innovative ideas. Students evaluate ways to reduce energy consumption through energy efficiency and waste management techniques.
- **Flight and Space**
  - Students study the history of aerospace through hands-on activities, research and a presentation in the form of an infomercial. Students explore the science behind aeronautics and use their knowledge to design, build and test a model glider. Simulation software is used to expose students to traveling and living in space.
- **Science of Technology**
  - Students trace how science has affected technology throughout history and learn about applied physics, chemical engineering and nanotechnology though exploratory activities and projects.
- **Magic of Electrons**
  - Through hands-on projects, students explore the science of electricity, the behavior and parts of atoms, circuit design and sensing devices. Students acquire knowledge and skills in basic circuitry design and explore the impact of electricity on their lives.